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DEVICE AND METHOD FOR CONDUCTING CELLULAR ASSAYS
USING MULTIPLE FLUID FLOW

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ABSTRACT OF THE DISCLOSURE

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The invention relates to a device for exposing a substrate surface to at least one fluid. The device comprises a substrate having a surface containing a contiguous target region and a cover plate. A plurality of fluid-transporting features is present in a cover plate surface, and the features are separated by at least one partitioning wall representing an integral portion of the cover plate. The features fluidly communicate with at least one outlet, and each feature fluidly communicates with an inlet. The cover plate surface is positioned in fluid-tight contact with the substrate surface such that the at least one partitioning wall contacts the contiguous target region. As a result, each feature, in combination with the substrate surface, forms a flow passage containing a distinct exposure zone on the target region. Also provided are methods for exposing a substrate surface to a plurality of cells and methods for detecting cell-cell interactions.